

## ABSTRACT

The present invention relates to a circuit for varying bandwidth of transconductance-capacitor filter by controlling transconductance of a transconductance circuit, and a digital tuning circuit of transconductor-capacitor filter. A transconductor of an embodiment of the present invention comprises a first and second amplifying devices; a resistor; a first and second bias current sources; and transconductance varying circuit. A tuning circuit of another embodiment of the invention relates to a digital tuning circuit comprising a transconductor that outputs current proportional to input voltage and a varying capacitance that is connected with output node of transconductor and between grounds and varies its capacitance depending upon the level of control signal. The digital tuning circuit further comprises a transconductor, a comparator, a counter, a varying capacitor, means for maintaining the output voltage of the transconductor as substantial zero for first period, and means for inputting input voltage to the transconductor for second period and means for inputting the output voltage of the transconductor to input node of the comparator.